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References

1. Xu HG, Qiang S. Inventory invasive alien species in China. Beijing: Chinese Environmental Science Press; 2004.
2. Zhou XC. Risk analysis of invasive *Pomacea canaliculata*. *Jian Yan Jian Yi Ke Xue*. 2004;14:37–9.
3. Tsai HC, Liu YC, Kunin CM, Lai PH, Lee SS, Chen YS, et al. Eosinophilic meningitis caused by *Angiostrongylus cantonensis* associated with eating raw snails: correlation of brain magnetic resonance imaging scans with clinical findings. *Am J Trop Med Hyg*. 2003;68:281–5.
4. Tsai HC, Liu YC, Kunin CM, Lee SS, Chen YS, Lin HH, et al. Eosinophilic meningitis caused by *Angiostrongylus cantonensis*: report of 17 cases. *Am J Med*. 2001;111:109–14.
5. Lin W, Wang XT. Epidemiological survey of angiostrongyliasis in Mainland China. *Chin J Zoonoses*. 2004;20:1004–5.
6. Hollingsworth RG, Cowie RH. Apple snails as disease vectors. In: Joshi RC, Sebastian LC. Global advances in ecology and management of gloden apple snails. Nueva Ecija: Philippine Rice Institute; 2006. p. 121–32.
7. Chen XG, Li H, Lun ZR. Angiostrongyliasis, mainland China. *Emerg Infect Dis*. 2005;11:1645–7.
8. The number of the case of angiostrongyliasis caused by eating *P. canaliculata* reached 131 in Beijing. [cited 2007 Jan 21]. Available from http://news3.xinhuanet.com/fortune//2006-09/12/content_5078790.htm
9. Cowie RH. Apple snails (Ampullariidae) as agricultural pests: their biology, impacts and management. In: Barker GM. Molluscs as crop pests. Wallingford (UK): CABI Publishing; 2002. p. 145–92.
10. Tsai HC, Lee SS, Huang CK, Yen CM, Chen ER, Liu YC. Outbreak of eosinophilic meningitis associated with drinking raw vegetable juice in southern Taiwan. *Am J Trop Med Hyg*. 2004;71:222–6.

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Possible Avian Influenza (H5N1) from Migratory Bird, Egypt

To the Editor: Wild migratory birds are reservoirs for low pathogenic avian influenza (LPAI) viruses (1), but their role in transmitting highly pathogenic avian influenza (HPAI) viruses is hotly debated and unclear (2–4). Beginning in July 2005, a clade of HPAI (H5N1) viruses rapidly expanded from an apparent focus in western People's Republic of China and spread to the Middle East, Africa, and Europe (5). Genetic analysis of HPAI virus isolates from dead wild birds along major flyways indicated that the strains were closely related to the Qinghai H5N1 A/bar-headed goose/Qinghai/65/2005 virus (clade II) (GenBank accession no. DQ095622). In addition to transmission to domestic poultry, HPAI (H5N1)-infected mute swans have been implicated in direct transmission to humans in Azerbaijan (6).

The US Naval Medical Research Unit No. 3 and the Ministry of Environment of Egypt have collaborated since 2003 in obtaining samples from migratory birds to detect circulating influenza viruses. During the 2005–06 migratory birds season, 1,304 migratory birds were sampled from either live bird markets or cage birds trapped by fishermen in Port Said, Damietta, Fayoum, Arish, and Sharm el Sheikh (online Appendix Figure, panel A, available from www.cdc.gov/EID/content/13/7/1120-appG.htm).

A total of 203 cloacal swab samples were positive for influenza A virus matrix gene when tested by real-time PCR, and 2 were also positive for the hemagglutinin 5 (H5) gene by using specific primers (7). Of the 2 migratory birds positive for the H5 gene, the first was a common teal (*Anas crecca*) captured in the Nile Delta region of Damietta in October 2005 (online Appendix Figure, panel A). Sequencing

of the H5 gene showed that this virus was an LPAI most closely related to strain A/mallard/Bavaria/1/2005(H5N2) (GenBank accession no. DQ387854 (2)).

In January 2006, an influenza A H5 virus (weak positive result) was detected in another common teal (trapped in a cage by a fisherman) sampled from the Damietta region in December 2005 (online Appendix Figure, panel A). The low viral load, coupled with the failure to isolate the virus, precluded the laboratory from conducting sequence analysis at the time on the basis of insufficient template material. After the outbreak of influenza A (H5N1) in poultry and humans in Egypt in February 2006, additional retrospective attempts to concentrate RNA were used to assess potential introduction scenarios. After multiple RNA extractions were conducted and the RNA was concentrated, this specimen was found to be positive for the neuraminidase 1 (N1) gene by real-time PCR.

The hemagglutinin gene from both teal strains was sequenced (≈1,596 bp). Sequences were aligned with other influenza A (H5N1) strains from Egypt (9 from humans, 5 from chickens). Twenty other strains with high similarity and from different locations were selected by using a GenBank search algorithm and included in the alignment. A phylogenetic analysis was conducted by using the Kimura 2-parameter model. The LPAI H5 virus strain was used as an outgroup in a neighbor-joining phylogenetic tree. Bootstrap analysis with 500 replicates of sequence data was also conducted by using MEGA 3.1 software (8).

Phylogenetic analysis showed clustering of the HPAI (H5N1) strains collected from 1 geographic region (country) (online Appendix Figure, panel B). All HPAI (H5N1) strains from Egypt from humans or chickens analyzed clustered with a bootstrap support value of 98%. Furthermore, the A/Teal/Egypt/14051-NAMRU3/2006

(H5N1) strain (collected in December 2005; online Appendix Figure, panel A) is an HPAI and is closely related to the parent of the group of viruses isolated in the early 2006 Egypt outbreak, with an average identity of 99.4% with all other strains from Egypt and a bootstrap support value of 96% (online Appendix Figure, panel B). Despite the rapid spread of this clade (Qinghai-like strain) to many countries, since late 2005, strains analyzed in this study showed low-level genetic variation (<2%).

Brown et al. reported that species can vary greatly in their response to HPAI (9). At least in ducks, it appears that viral shedding is highest in birds with clinical signs of infection, and lowest, as seen in the common teal infected with the HPAI strain in this study, in birds with subclinical infections. These subclinical infections may be due to flock immunity from previous exposure to LPAI H5 virus or genetic factors. This suggestion is conceivable in light of the LPAI H5 virus detected in the other teal a few months earlier.

Such naturally resistant wild birds might serve as vectors for introduction of HPAI viruses into new locations. Data presented herein suggest that an HPAI virus may have been introduced into Egypt through a migratory bird. Whether poultry were infected before mid-February or the teal was infected with influenza A (H5N1) virus by a domesticated species is not unknown. The low degree of viral shedding indicates that detection of any influenza A (H5N1) virus in wild birds in a new region should be immediately followed up with efforts to characterize the virus to control the spread of new subtypes/strains of HPAI into new locations.

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References

1. Alexander DJ. A review of avian influenza in different bird species. *Vet Microbiol.* 2000;74:3–13.
2. Munster VJ, Wallensten A, Baas C, Rimmelzwaan GF, Schutten M, Olsen B, et al. Mallards and highly pathogenic avian influenza ancestral viruses, northern Europe. *Emerg Infect Dis.* 2005;11:1545–51.
3. Sturm-Ramirez KM, Ellis T, Bousfield B, Bissett L, Dyrting K, Reh JE, et al. Re-emerging H5N1 influenza viruses in Hong Kong in 2002 are highly pathogenic to ducks. *J Virol.* 2004;78:4892–901.
4. Normile D. Avian influenza. Evidence points to migratory birds in H5N1 spread. *Science.* 2006;311:1225.
5. Yingst SL, Saad MD, Felt SA. Qinghai-like H5N1 from domestic cats, northern Iraq. *Emerg Infect Dis.* 2006;12:1295–7.
6. Gilsdorf A, Boxall N, Gasimov V, Agayev I, Mammadzade F, Ursu P, et al. Two clusters of human infection with influenza A/H5N1 virus in the Republic of Azerbaijan, February–March 2006. *Euro Surveill.* 2006;11:122–6.
7. Spackman E, Senne DA, Myers TJ, Bulaga LL, Garber LP, Perdue ML, et al. Development of a real-time reverse transcriptase PCR assay for type A influenza virus and the avian H5 and H7 hemagglutinin subtypes. *J Clin Microbiol.* 2002;40:3256–60.
8. Kumar S, Tamura K, Nei M. MEGA3: Integrated software for molecular evolutionary genetics analysis and sequence alignment. *Brief Bioinform.* 2004;5:150–63.
9. Brown JD, Stallknecht DE, Beck JR, Suarez DL, Swayne DE. Susceptibility of North American ducks and gulls to H5N1 highly pathogenic avian influenza viruses. *Emerg Infect Dis.* 2006;12:1663–70.

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Community-acquired Extended-Spectrum β -Lactamase Producers, United States

To the Editor: Extended-spectrum β -lactamase (ESBL)-producing organisms have become a common problem for patients in hospitals and other healthcare facilities (1). Community-onset ESBL infections have recently been described in Spain, the United Kingdom, Israel, and Canada (2,3). Typically, the infections are urinary tract infections (UTIs) with CTX-M-producing *Escherichia coli*. These organisms may be resistant to most or all antimicrobial agents commonly used to treat UTIs, such as ciprofloxacin, trimethoprim-sulfamethoxazole, gentamicin, and ceftriaxone.

Although CTX-M-producing *E. coli* have previously been found in the United States (4), clinical descriptions of community-acquired ESBL-producing *E. coli* infections have not been reported in this country. We describe 2 healthy young women in Pennsylvania in whom UTI with CTX-M-15-producing *E. coli* developed.

A 25-year-old woman was seen in October 2006 at the emergency department of a hospital in Pittsburgh reporting frequent urination, chills, and bilateral back pain. She had no relevant past medical history except for previous UTIs. Results of a physical examination were unremarkable.